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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,184	12/11/2001	Marcel Breeuwer	PHNL000693US	2705
38107 7590 07/13/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS 595 MINER ROAD CLEVELAND, OH 44143			EXAMINER LU, TOM Y	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 07/13/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/014,184

Applicant(s)

BREEUWER, MARCEL

Examiner

Tom Y. Lu

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 10-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. Request for Continued Examination filed 04/23/2007 has been entered.
2. Upon entry of the Request for Continued Examination, the amendment filed 04/23/2007 is entered and considered.
3. Claims 1-9 are cancelled.
4. Claims 10-23 are added.
5. Claims 10-23 are currently pending.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 10-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Cesmeli et al (“Cesmeli” hereafter) (“An automated temporal alignment technique for the translational and rotational correction of digital radiographic images of Bjork-shiley heart valves” Proceedings Of The Computers In cardiology Conference. London, Sept 5-8, 1993, Los Alnmitos, IEEE Comp. SOC. Press, US, 5/9/93/ pages 619-622.)

- a. As per claim 10, Cesmeli discloses a system for visualizing perfusion behavior of an organ (Cesmeli teaches a system of visualizing the perfusion of a heart valve, page 619, section 2.1 data acquisition, and the image frames are taken at a speed of 15 or 30 frames per second, which means they are taken while utilizing a

perfusion measurement.), the system comprising: a processor (Cesmeli's system inherently contains a processor for programming) programmed to: for each image in a series of images (a sequence of image frames are acquired and displayed on a Siemens HICOR angiocardiology system, see section 2.1 data acquisition, page 619), determine a transform that minimizes positional differences between a reference region in the immediate vicinity of the organ in each image and the same reference region in a preceding image (segmented valve image for each cineangiographic image is the claimed "reference region"), operate on each image with the corresponding determined transform such that the reference region in each image is transformed to a common position (a translational and rotational transformation is performed on each of segmented valve images in a series, in which a preceding image is taken as a reference image for the subsequent image, and all images are aligned in a fixed position as seen in figure 3, see section 2.2 data analysis), analyze the series of images with the reference region in the common position to determine the perfusion behavior of the organ (based upon the section 2.2 data analysis, the perfusion behavior of the heart valve is determined by quantitative image analysis procedures applied to the cineangiographic data, see section 1 Introduction); and, a display on which at least one of a visualization of the perfusion behavior and the series of images is displayed (Cesmeli's system includes a display for displaying images and 3D visualization, see figures 1 and 5 for image displaying).

- b. As per claim 11, Cesmeli discloses a method of visualizing perfusion behavior of an organ (a system is implemented based on a method/theory), the method comprising: acquiring a series of images which contain the organ (a series of cineangiographic images containing heart valves, see section 2.1); determining a reference region in each image of the series (the valve region of each cineangiographic image is segmented, see section 2.2); for each image of the series, determining a transform that minimizes positional difference between the reference region in said each image and the reference region in a preceding reference image; operating on each image with the determined transform that minimizes the differences between the reference regions of said each image and the preceding reference image such that the reference region of image is transformed to a common position in each image (a translational and rotational transformation is performed on each of segmented valve images in a series, in which a preceding image is taken as a reference image for the subsequent image, and all images are aligned in a fixed position as seen in figure 3, see section 2.2 data analysis); determining a perfusion measurement of the organ (quantitative image analysis determines a perfusion measurement of the organ); displaying the perfusion measurement (Cesmeli's system includes a display for displaying images and 3D visualization, see figures 1 and 5 for image displaying).
- c. As per claim 12, Cesmeli discloses wherein the reference image is an immediately preceding image (section 2.2).

- d. As per claim 13, Cesmeli discloses wherein the reference image is a first image of the series (section 2.2).
- e. As per claim 14, Cesmeli discloses wherein the determined transform that minimizes the difference between the reference regions of each image and the reference image operates on the entire each image (by translating and rotating a segmented valve image, its corresponding cineangiographic image is translated and rotated as well).
- f. As per claim 15, Cesmeli discloses displaying each image of the series with the reference region in the common position (see figure 3).
- g. As per claim 16, Cesmeli discloses wherein the transform is limited to translation and rotation (see explanation above).
- h. As per claim 17, Cesmeli discloses wherein acquiring the series of images includes: magnetic resonance imaging a subject that has been injected with a contrast liquid that facilitate perfusion measurement (see definition of "cineangiography")
- i. As per claim 18, Csmelis discloses wherein the perfusion measurement is determined from intensity variation of the injected contrast liquid in successive images (see section 1 for quantitative image analysis on cineangiographic images).
- j. As per claim 19, Cesmeli discloses wherein the series of images are displayed serially with the reference region in the common position for visual inspection

enabling analysis of the perfusion behavior of the organ to be examined (see section 1).

- k. As per claim 20, Cesmeli's system is a computer-based system, which inherently contains the claimed "computer readable medium" storing "a computer program".
- l. As per claim 21, Cesmeli discloses a method of visualizing perfusion behavior of an organ, the method comprising: performing a transformation generation on every pair of successive images from a series of image of the organ in such a manner that subsequent to the transformation, the organ is displayed in a common position in each image, the transform operation being determined from a reference region in the immediate vicinity of the organ in the images of the series such that the perfusion behavior of the organ can be visualized (see explanation in claim 11 above) while other less important parts of the images are subject to displacement from image to image (the examiner notes the reference region in Cesmeli is a segmented valve image, which implies the remainder of a cineangiographic image is subjected to displacement from image to image according to the operator).
- m. As per claim 22, see explanation in claim 20.
- n. As per claim 23, see explanation in claim 10.

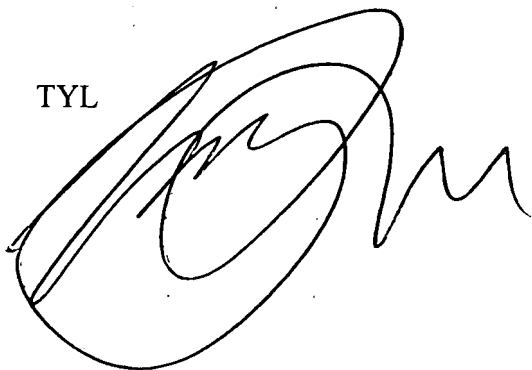
### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y. Lu whose telephone number is (571) 272-7393. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571)-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TYL

A handwritten signature in black ink, consisting of a large, stylized 'O' followed by a series of loops and a final 'm' shape.